General introduction

Introduction

In order to maintain high-quality education, it is important to have a sufficient number of teachers. Moreover, it is important that they demonstrate a high level of teaching quality, as both the quantity and the quality of teachers are important in improving student outcomes. However, most countries in the world, often affected by economic circumstances, appear to face challenges in this respect (Cörvers, 2014, 2019). Countries which suffer from teacher shortages and teachers who lack sufficient teaching skills are at risk of providing low-quality education that will ultimately negatively affect their students' results.

Several interventions are possible when countries face a shortage of teachers. They may attempt to attract more teachers by raising salaries and the social status of the profession, or they may upgrade their teacher training programs. This may lead to an increased number of student teachers with greater potential who are in search of challenging education. Alternately, countries may lower the entrance criteria for teacher education in order to attract more students from lower levels of secondary education, or they may offer shorter programs. However, these cheaper and quicker solutions run the risk of eventually lowering the quality of the teacher population, and may subsequently result in lowering the status of the profession even further.

When comparing educational situations internationally, one will see that the countries which are often cited as good examples are countries which do not suffer from a teacher shortage or a low quality of teaching. Teacher training in Finland and Singapore, for example, is highly selective: only the best students are selected to become teachers and the profession enjoys a high status (e.g., Bates, 2013; Darling-Hammond, 2017). Furthermore, teacher education is fully subsidized by the government and offers ample opportunities for professional development (Darling-Hammond, 2017). By contrast, countries such as the United States, the United Kingdom, and Australia experience difficulties attracting people to the teaching profession in times of economic prosperity (Bates, 2013; Darling-Hammond, 2017). Such countries have created various alternate routes for entering the teaching profession, and most of the teachers who enter these programs have attained at least a bachelor's degree before starting the program. These alternative routes usually provide potential teachers with a limited amount of preparation before they start teaching. For example, Teach First in the United Kingdom offers participants a six-week training course, after which they can enter the teaching profession and become qualified teachers within two years (Allen & Allnutt, 2017).

It is unclear how student outcomes will be affected by the alternative routes in which entrance criteria are lowered to attract students with a lower educational background. However, the results of studies evaluating the impact of alternative routes in which students had already obtained a bachelor's degree on student performance generally indicate that certified teachers from the alternative routes do not have a negative impact on student learning (e.g., Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006; Darling-Hammond, Holtzman, Gatlin, & Heilig, 2005; Glazerman, Mayer, & Decker, 2006; Kane, Rockoff, & Staiger, 2008).

The Dutch context

Teacher education in the Netherlands has largely developed in response to two related challenges. These are: 1) a growing demand for primary school teachers, and 2) a lack of sufficient teaching quality.

The shortage of Dutch primary school teachers may mostly be attributed to the low status of the profession and the relatively low wages of primary school teachers in comparison to secondary school teachers and other occupations with similar educational requirements (e.g., Aristorenas, 2018; Education Council, 2018). Moreover, more experienced teachers are retiring and leaving the profession, whereas too few students are attracted to it. This teacher shortage fluctuates cyclically over the years, depending on the number of students in need of education (demand) and the number of available teachers (supply) (e.g., Devos & Vanderheyden, 2002).

Furthermore, there are concerns about teaching quality, mainly regarding teachers' ability to demonstrate complex teaching behaviors, such as classroom differentiation and teaching learning strategies (Education Council, 2013; Dutch Inspectorate of Education, 2012). According to the Dutch Inspectorate of Education (2012) only 40% of primary school teachers demonstrates complex teaching behaviors during their lessons. The Dutch Education Council also emphasized the importance of developing teaching quality. Additionally, there were concerns about teachers' levels of generic knowledge and domain-specific knowledge (e.g., math and language) (Education Council, 2013; Traag, 2018). These concerns have led to several developments in the field of Dutch primary teacher education, such as establishing national knowledge requirements for teachers and admission tests for students entering primary teacher education. Furthermore, a new academic bachelor's program has been introduced, which prepares students for the profession of primary school teaching (National network of academic teacher training programs, 2018). This academic program is expected to contribute to alleviating both concerns. It is an example of an intervention that does not lower the entrance criteria in order to draw students to teacher education. Rather, it is an intervention that upgrades these criteria and seeks to attract more students with higher potential. It therefore targets a new group of students that would likely not have entered teacher education in the absence of academic requirements. It is expected to help solve the problems regarding the quantity and quality of primary school teachers, firstly by attracting students from the highest level of secondary education to the teaching profession, and secondly by training these students in a research-oriented environment. Previous research has indicated that teachers' research skills can contribute to teaching quality in schools (e.g., Zeichner, 2003). In this dissertation, we conducted an evaluation study in order to gain insight into the relation between the type of teacher training program and teaching practices of primary school teachers beginning their careers. We did this by comparing teachers who had graduated from the academic teacher training program with teachers who had graduated from the traditional higher professional teacher training program.

In this general introduction, we will first examine the Dutch education system more closely, particularly the differences between the academic and the higher professional teacher training programs. We will then explore the aspects of teaching practices that determine quality and are related to student results, and we will seek to determine in which ways the two groups may have a different impact.

Dutch bachelor's programs preparing for the profession of primary school teacher

The Dutch higher education system distinguishes two different orientations: 1) research-oriented education and 2) higher professional education (European Consortium for Accreditation, 2014). An overview of the Dutch education system is presented in Figure 1. Until 2008, primary school teacher training programs were only offered in higher professional education. The introduction of the academic teacher training program in 2008 gave students the opportunity to follow an academic trajectory to the profession of primary school teacher. The main distinction between these education programs is the dual focus on research and practice in the academic program versus the practical orientation of the higher professional program. However, the international qualification levels for both programs are similar. Both teacher training programs will be discussed in more detail below.

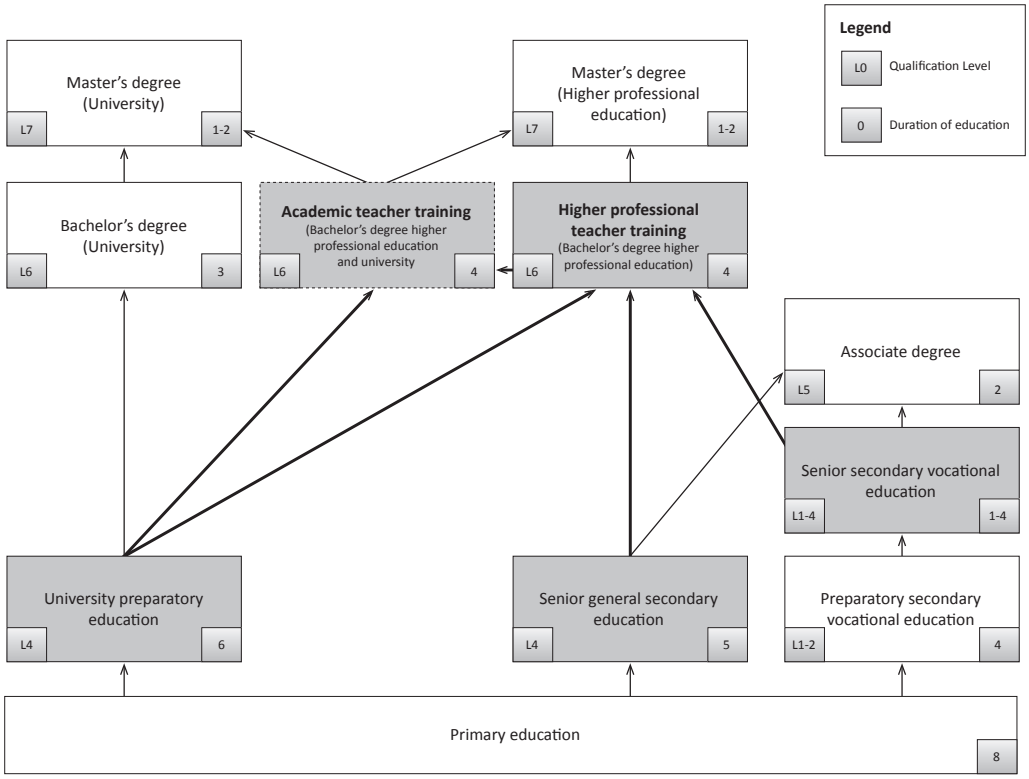

Figure 1. Dutch education system (based on Nuffic, 2015). The qualification levels of the different education programs are presented in the left corner of each box and the duration of the education program is presented in the right corner. The arrows represent the different pathways in the Dutch education system. The bold arrows depict the intake of first-year students from different levels in secondary education in the academic and higher professional teacher training programs.

Higher professional teacher training program

The higher professional teacher training program is a four-year bachelor's degree program. Students entering this teacher training program generally have senior general secondary or senior secondary vocational diplomas (Nuffic, 2015). In 2016, only approximately 12% of students entering this teacher training program were in possession of pre-university diplomas (Ministry of Education, Culture & Science, n.d.). This program has a practical orientation in which students mainly study professional literature. Students generally spend 2072 hours (74 ECTs) in primary schools, including supervision and assignments. Besides the four- year bachelor's degree program, universities of applied sciences also offer a two-year teacher training program to attract people from other occupations to the teaching profession. People enrolling in this program are required to hold a bachelor's degree at a research-oriented university or a university of applied sciences.

Academic teacher training program

In 2008, a new academic four-year bachelor's degree was developed preparing for the profession of primary school teacher. This academic teacher training program is an alternative to the traditional bachelor's degree in higher professional education. The new program is a combination of the higher professional bachelor's program for primary teacher education and the research-oriented bachelor's program of educational sciences or pedagogy. Graduates obtain a double bachelor's degree in both higher professional education and at a research-oriented university. Students entering this program are generally in possession of pre- university diplomas or a propaedeutic certificate in higher professional education. The program has a strong focus on the acquisition of research skills, and students mainly study scientific literature. Additionally, students complete several internships in primary schools, which generally comprise approximately 1932 hours (69 ECTs), including supervision and assignments. The academic program is offered at six different universities, leading to minor differences in the programs. Nevertheless, these institutes have a joint graduation profile describing the knowledge and skills of graduates of the academic teacher training programs (see National network of academic teacher training programs, 2018). The first graduates of the academic teacher training program started working in the field in 2012.

Effective teaching practices

Numerous studies have investigated the relation between teachers' behaviors and student learning (e.g., Kyriakides, Christoforou, & Charalambous, 2013; Scheerens, 2016; Seidel & Shavelson, 2007). These studies have shown that it is not a single behavioral dimension, but always a combination of teacher behaviors that makes education effective. Most of these studies focused on various observable behavioral dimensions of teaching quality, including teaching behavior and relational aspects.

Teaching behaviors, such as creating a safe and stimulating learning environment, using efficient classroom management, quality of instruction, engaging students, using activating teaching methods, differentiating, providing learning opportunities, and teaching learning strategies are known to be effective (e.g., Kyriakides, Christoforou, & Charalambous, 2013; Scheerens, 2016; Seidel & Shavelson, 2007; Van de Grift, Van der Wal, & Torenbeek, 2011). The first

three behaviors on the list (creating a safe and stimulating learning environment, using efficient classroom management, and quality of instruction) are referred to as basic teaching behaviors, whereas, for example, classroom differentiation and teaching learning strategies are considered more complex behaviors (e.g., Dutch Inspectorate of Education, 2012; Kyriakides, Creemers, & Antoniou, 2009; Van de Grift, Helms-Lorenz, & Maulana, 2014; Van de Grift, Van der Wal, & Torenbeek, 2011).

Additionally, relational aspects such as teacher support (e.g., Cornelius-White, 2007; Scheerens, 2016; Seidel & Shavelson, 2007) and teachers' engagement skills (e.g., Appleton, Christenson, & Furlong, 2008; Harbour, Evanovich, Sweigart, & Hughes, 2015) are also known to influence students' cognitive and affective outcomes.

Teachers develop their teaching quality over the course of their career. Research generally shows that the largest changes occur during the first years of the teaching career (e.g., Brekelmans, 2010; Van de Grift, Van der Wal, & Torenbeek, 2011). Specifically, studies have found a hierarchical order in the teaching behaviors that teachers develop during their career, in which teachers first need to master basic teaching behaviors before they are able to develop more complex teaching behaviors (e.g., Dutch Inspectorate of Education, 2012; Kyriakides, Creemers, & Antoniou, 2009; Van de Grift, Helms-Lorenz, & Maulana, 2014; Van de Grift, Van der Wal, & Torenbeek, 2011).

In addition to these observable behaviors of teaching quality, the way teachers interpret and reflect on different classroom situations is also important. (e.g., Kulinna, 2007-2008; Soodak & Podell, 1994; Wang & Hall, 2018). In order for student teachers and beginning teachers to improve, they need to be able to reflect on their own behaviors and act upon their assessment. Lew, Alwis, and Schmidt (2009) found that teachers' abilities to accurately evaluate their own behavior and the factors influencing their lessons were positively related to their decisions, emotional responses, and instructional strategies.

The current study

High-quality teachers show effective teaching behaviors and are able to establish a high-quality teacher-student relationship and evaluate their own behavior in order to refine their teaching and positively influence student outcomes (e.g., Cornelius-White, 2007; Kyriakides, Christoforou, & Charalambous, 2013; Scheerens, 2016; Seidel & Shavelson, 2007). The introduction of the academic teacher training program is expected to attract students from the highest level of secondary education to the teaching profession and educate these students in a research-oriented environment (Education Council, 2013). Previous research has shown that these research skills can contribute to the educational quality in schools (e.g., Zeichner, 2003). However, the question remains in which respect academic graduates differ from higher professional teachers in their practices. Research into the relationship between teacher training program and teaching behavior in primary education is scarce and inconclusive. Moreover, these international studies are difficult to compare to the Dutch education system since the educational context differs per country. For example, the teacher training programs differ in length, entry requirements, and content.

A first exploration of the relation between the type of teacher training program and teaching practices of Dutch primary school teachers was conducted in this dissertation, by answering the following main research question:

To what extent do academic and higher professional teachers differ in their daily teaching practices?

Overview of this dissertation

We explored, in Chapters 2 to 5, the teaching practices of Dutch academic and higher professional primary school teachers. Figure 2 provides an overview of the different constructs that were addressed in each of the chapters.

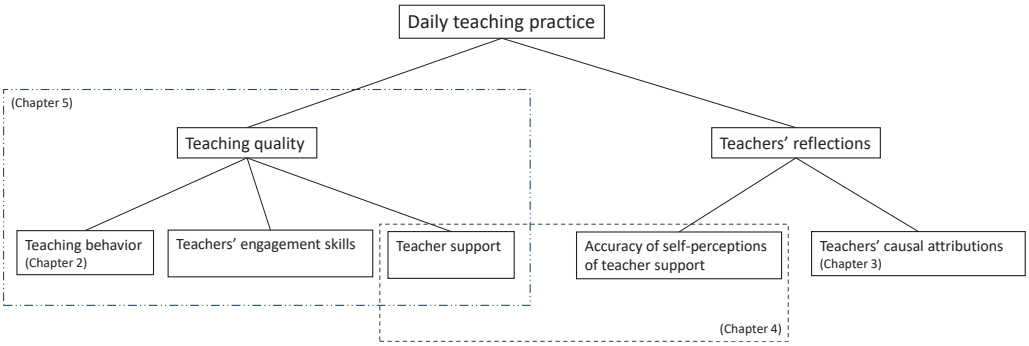

Figure 2. *Overview of the constructs that were addressed in Chapters 2-5 of the dissertation.*

We focused on several observable dimensions of teaching quality and teachers' reflections on different classroom situations and their own behavior. In this dissertation, teaching quality was defined in terms of behaviors that have a positive impact on student outcomes. A multiple perspective approach was used to gain a comprehensive picture of teachers' teaching practices (Nelson, Reddy, Dudek, & Lekwa, 2017). These teaching practices were explored using three different approaches: 1) classroom observations conducted by external observers, 2) teacher and student questionnaires, and 3) semi-structured interviews.

In Chapter 2, we focused on teaching behavior by exploring the relation between teaching behavior and teaching experience of academic and higher professional beginning primary school teachers. Since previous research had shown that the largest development in teaching behavior happens during the first years of the teaching career (e.g., Brekelmans, 2010; Van de Grift, Van der Wal, & Torenbeek, 2011), we explored whether the two groups of teachers with different educational backgrounds differed in their development. Classroom observations were conducted in 2015-2017 to measure teaching behavior based on six constructs: 1) safe and stimulating learning environment, 2) efficient classroom management, 3) clear instruction, 4) stimulating and activating lesson, 5) differentiation, and 6) teaching of learning strategies. The first three constructs are referred to as basic teaching behavior and the last three as complex teaching behavior (Van de Grift, Van der Wal, & Torenbeek, 2011). Multilevel growth curves were

estimated to represent the relation between teaching experience and teaching behavior for the two groups of teachers. The prior secondary education level of students entering the higher professional teacher training program differed from that of students entering the academic program. Therefore, we also conducted preliminary analyses to explore whether there were any indications that differences in the level of secondary education may have impacted differences in the relationship between teaching behavior and teaching experience.

The way teachers interpret and reflect on different classroom situations also affects their future teaching behaviors, such as decision-making, responses, and instructional strategies (e.g., Kulinna, 2007-2008; Soodak & Podell, 1994; Wang & Hall, 2018). To gain more insight into the reasons teachers give to explain the proceedings of their lesson, we explored, in Chapter 3, to what causes teachers attributed the situations that occurred during their lesson, whether they felt in control over these causes (causal control), and whether academic and higher professional teachers differed in this respect. In 2017, after a classroom observation, semi-structured interviews were conducted with a sub-sample of the observed teachers. The aim of this interview was to discover how satisfied teachers were with the observed lesson and to identify the factors which they believed had influenced the observed lesson.

Relational aspects have also been found to be important for students' cognitive and affective outcomes (e.g., Cornelius-White, 2007; Harbour, Evanovich, Sweigart, & Hughes, 2015; Scheerens, 2016; Seidel & Shavelson, 2007). Therefore, in Chapter 4, we explored differences in the level of teacher support demonstrated by academic and higher professional teachers. Teacher support refers to the warmth or care displayed by the teacher or their proximity to the students. Additionally, we studied whether academic and higher professional teachers differed in the accuracy of their self-perceptions of teacher support. Previous research has shown that teachers have difficulties in accurately assessing their own interpersonal behavior. However, accurate self- reflection is an important skill for teachers which enables them to assess their progress and adjust their future practices (Lew, Alwis, & Schmidt, 2009).

In Chapters 2 to 4, we investigated two different observable dimensions of teaching quality individually, by looking either at teaching behavior or at teacher support. However, these dimensions are not mutually exclusive, but influence each other during classroom teaching. A person-centered approach assumes that multiple dimensions of teaching quality interact within a teacher, which can be investigated by exploring the existence of teacher profiles of teaching quality (e.g., Bergman & Trost, 2006). Accordingly, in Chapter 5, we first explored whether teaching quality profiles could be distinguished, based on teaching behavior, teacher support, and teachers' engagement skills. Furthermore, we explored whether academic and higher professional teachers differed with respect to these teaching quality profiles.

Finally, in Chapter 6 the results of the four studies were summarized and discussed, as well as limitations of the studies, implications for policy and practice, and recommendations for future research.

Since this dissertation consists of separate studies that can be read independently, there may be some overlap between the chapters with regard to the theoretical background and the description of the teacher training programs.